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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,532	05/16/2001	Joseph E. Geusic	M4065.0439/P439	9772

24998 7590 06/30/2005

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EXAMINER

RODRIGUEZ, ARMANDO

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/855,532

Applicant(s)

GEUSIC ET AL.

Examiner

ARMANDO RODRIGUEZ

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-81 is/are pending in the application.
- 4a) Of the above claim(s) 23-38 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 39-81 is/are allowed.
- 6) ☒ Claim(s) 2, 7-10 and 12-18 is/are rejected.
- 7) ☒ Claim(s) 3-6, 9 and 19-22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/24/2001.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 1-22, 39-81 in the reply filed on May 4, 2005 is acknowledged.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on September 24, 2001 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner is considering the information disclosure statement.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1- are rejected under 35 U.S.C. 102(b) as being anticipated by Sato et al (1999 IEEE).

Regarding the preamble in accordance with MPEP 2111.02, the preamble is not given patentable weight because it merely recites the purpose of the method steps and the body of the claim does not depend on the preamble for completeness, since the recited method steps stand alone to provide a space within a substrate. Furthermore, the requirements for obtaining a reflective mirror are to form an empty-space pattern within the substrate.

Regarding claim 1,

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Sato et al illustrates in figure 2 a method of forming an empty space within silicon [applicant's substrate], as described in pages 20.6.1-20.6.2.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2, 7-10, 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al (1999 IEEE).

Regarding claims 2, 16,

Sato et al illustrates in figure 2 a method of forming an empty space within silicon [applicant's substrate], as described in pages 20.6.1-20.6.2.

Sato et al is silent as to forming a plurality of empty-spaced patterns.

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However, in accordance with MPEP 2144.04 VI B, the court has held that mere duplication of parts has no patentable significance unless a new and unexpected result is produced.

In the instant application it would have been obvious to a person having ordinary in the art to repeat the process described by Sato et al to obtain more than one (plurality) empty spaces within a silicon substrate.

Regarding claim 7,

On page 20.6.1 (Formation of Empty Spaces In Silicon (ESS)), Sato et al describes forming holes and annealing the silicon substrate.

Regarding claim 8,

Figure 2 illustrates the holes as cylindrical.

Regarding claim 9,

On page 20.6.2 figure 4 discloses annealing at a temperature of 1100°C, which is below the melting temperature of silicon.

Regarding claim 10,

On page 20.6.1 Sato et al discloses annealing in hydrogen ambient.

Regarding claims 12, 13,

Figure 2c illustrates a plate shape empty space within the substrate.

Regarding claims 14, 15,

On page 20.6.3 Sato et al discloses controlling the shape and thickness of the plate shape empty space by controlling D_{NT} .

Regarding claims 17, 18,

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Sato et al discloses a silicon substrate.

Allowable Subject Matter

Claims 3-6, 9, 19-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 39-81 are allowed.

Regarding claims 39-54

None of the cited prior arts alone or in combination discloses the claimed method having the recited limitations, in particular the radius of the holes as defined and the spacing (distance) of the holes as defined.

Regarding claims 55-81,

None of the cited prior arts alone or in combination discloses the claimed method having the recited limitations, in particular having an integrated circuit with a reflective mirror within the substrate, where the reflective mirror has an empty space pattern.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to ARMANDO RODRIGUEZ whose telephone number is 571-272-1952. The examiner can normally be reached on 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MINSUN HARVEY can be reached on 571-272-1835. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


ARMANDO RODRIGUEZ
Examiner
Art Unit 2828

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